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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/825,065

04/14/2004

Karl J. Duyck

0174-PA-CIP

7216

7590

12/04/2006

Michael P. Dilworth  
CROMPTON CORPORATION  
Benson Road  
Middlebury, CT 06749

EXAMINER

GOLOBOY, JAMES C

ART UNIT

PAPER NUMBER

1714

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/825,065

Applicant(s)

DUYCK ET AL.

Examiner

James Goloboy

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 1, 10, 11 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/14/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1, 10, 11, and 20 are objected to because of the following informalities:

There should be a space between "to" and "C<sub>20</sub>". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-4, and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Wheeler (U.S. Pat. No. 5,268,394).

Wheeler, in the reference's Claim 1, discloses an additive composition comprising an acridan having the structure recited in the currently presented Claims 1 and 10 (where R3 and R4 are hydrogen), a diphenylamine, and a hindered phenol. In the reference's Claim 8, Wheeler discloses that this composition may be used along with a lubricant.

The present claims recite the limitation that the alkylated diphenylamine in the composition is "residual". Based on the examples in on pages 26 and 27 of the specification, it is clear that "residual" alkylated diphenylamine is not limited to a small

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unavoidable impurity remaining after the condensation reaction, but instead can be more than three times the amount of acridan present in the composition. Therefore, it is clear that the composition of Wheeler, where the diphenylamine is added separately after the acridan is isolated, inherently meets the limitations of Claims 1 and 10.

From column 4 line 39 through column 5 line 10 Wheeler teaches the synthesis of the acridan involving the condensation of a diphenylamine with a ketone. In column 4 line 55 Wheeler teaches that the diphenylamine may be alkylated, as recited in Claim 3, and in column 4 line 41 further teaches that the ketone can be acetone, as recited in Claim 4.

In the reference's Claim 1(c), Wheeler teaches that the composition also comprises a hindered phenol, which is an antioxidant as recited in Claims 7 and 8. In column 5 lines 16-17 Wheeler discloses 2,6-di-t-butyl-4-methyl phenol, recited in Claim 9, as a suitable hindered phenolic antioxidant.

The composition of Wheeler therefore meets the limitations of Claims 1, 3-4, and 7-10.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheeler in view of Deetman (U.S. Pat. No. RE37,101) in light of the evidence provided by Downs (U.S. Pat. No. 5,310,491).

The discussion of Wheeler in paragraph 3 above is incorporated here by reference. Wheeler discloses a composition in accordance with Claim 1 but does not specifically disclose the use of a nonylated or butylated octylated diphenylamine.

Deetman, in column 9 lines 58-61 teaches the use of Irganox L57 as an antioxidant in a functional fluid composition, and in column 1 lines 16-17 teaches that functional fluids may be lubricants, and in column 5 lines 62-67 teaches that the base stock of the invention comprises mainly alkyl phosphate esters, which are a lubricating base oil. Downs, in column 5 lines 36-38, states that Irganox L57 is a butylated octylated diphenylamine, as recited in Claim 2. The use of the diphenylamines of Downs in the composition of Wheeler therefore meets the limitations of Claims 2 and 5-6.

In column 10 lines 12-13 Deetman further teaches that an acridan may be used as an antioxidant additive, and in column 10 lines 15 teaches that the acridan and the

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alkylated diphenylamine may be used in combination ("mixtures thereof"). In column 10 lines 7-10 Deetman reports that the reaction products of diphenylamine and acetone or complex diarylamines and ketones may be used as antioxidants.

In light of the above teachings, it would have been obvious to one of ordinary skill in the art that the reaction mixture of Wheeler, containing acridans and diphenylamines, was suitable for use as an antioxidant additive without the isolation of the acridan. Therefore, the method Claims 11-20 as well as the composition Claims 1-10 are rendered obvious.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wheeler in view of Emert (U.S. Pat. No. 5,498,809).

The discussion of Wheeler in paragraph 3 above is incorporated here by reference. Wheeler discloses the use of 2,6-di-t-butyl-4-methyl phenol as an additional antioxidant but does not disclose the other compounds recited in Claim 9.

Emert, from column 70 line 66 through column 71 line 65, teaches the use of many of the compounds recited in Claim 9 as antioxidant additives for lubricant compositions.

It would have been obvious to one of ordinary skill in the art to use the additives of Emert as additional antioxidants in the composition of Wheeler, as Emert teaches in column 70 lines 43-47 that such additives reduce the deterioration of lubricants in service.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tuley (U.S. Pat. No. 2,202,934) discloses aliphatic ketone-diarylamine antioxidants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Goloboy whose telephone number is 571-272-2476. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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*James C. Goldoy*  
JCG

*Vasu Jagannathan*  
VASU JAGANNATHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700